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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,418	06/24/2003	Sunichi Sato	2271/53467-A1	9699

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EXAMINER	
SCHILLINGER, LAURA M	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,418	SATO, SUNICHI	
	Examiner	Art Unit	
	Laura M Schillinger	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *22-59* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/834959.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Note the subsequent election of species requirement

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 22-43, drawn to a method, classified in class 438, subclass 478.

II. Claims 44-59, drawn to a device, classified in class 257, subclass 161.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the nitrogen containing semiconductor can be formed by sputtering, CVD or implantation methods.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II and vice versa, restriction for examination purposes as indicated is proper.

This application contains claims directed to the following patentably distinct species of the claimed invention:

Group I

Species 1, claims 22 and 38, a method including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA and further the III-V alloy comprises Ga, In, N and As.

Species 2, claim 23, a method for growing including MOCVD at a pressure at least that of conventional low pressure MOCVD including a III-V alloy comprises Ga, In, N and As wherein the semiconductor comprises not less than 0.5 % N;

Species 3, claim 24-28 and 38 -39, a method for growing including a MOCVD method under specified conditions of temperature and pressure wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA and further the III-V alloy comprises N and As;

Species 4, claim 29, 38 a method of growing a III-V alloy on a GaAs substrate a MOCVD method under specified conditions of temperature and pressure the III-V alloy comprises N and As and the semiconductor comprises not less than 0.5% N;

Species 5, claim 30 and 38, a method of growing a III-V alloy on a GaAs substrate including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA, under conditions such as partial pressure of 2 Ps or more and a temperature of 500 C or more and the alloy comprises at least N and As.

Species 6, claim 31 and 38, a method of growing a III-V alloy on a GaAs substrate including MOCVD at a pressure at least that of conventional low pressure MOCVD under conditions such as partial pressure of 2 Pa or more and a temperature of 500 C or more and the alloy comprises at least N and As and the semiconductor comprises not less than 0.5% N

Species 7, claim 32 and 38, a method of growing a III-V alloy on a GaAs substrate including MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA, under conditions such as partial pressure of 10 Pa or more and a temperature of 500 C or more and the alloy comprises at least N and As.

Species 8, claim 33 and 38, a method of growing a III-V alloy on a GaAs substrate including MOCVD under conditions such as partial pressure of 10 Pa or more and a temperature of 500 C or more and the alloy comprises at least N and As wherein the semiconductor does not comprise less than 0.5% N;

Species 9, claim 34 and 38, a method of fabricating a semiconductor device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 2 Pa or more and a temperature of 500 C or more and the alloy comprises at least N and As;

Species 10, claim 35 and 38 a method of fabricating a semiconductor device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD under conditions such as partial pressure of 2 Pa

or more and a temperature of 500 C or more and the alloy comprises at least N and As wherein the semiconductor does not comprise less than 0.5% N;

Species 11, claim 36 and 38, a method of fabricating a semiconductor device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 10 Pa or more and a temperature of 600 C or more;

Species 12, claim 37 and 38, a method of fabricating a semiconductor device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD under conditions such as partial pressure of 10 Pa or more and a temperature of 600 C or more wherein the semiconductor comprises not less than 0.5 N;

Species 13, claims 40-42a method for growing a III-V alloy on a GaAs substrate including a MOCVD method under specified condition of either temperature or pressure and the alloy comprises at least N and As wherein the semiconductor does not comprise less than 0.5% N.

Group II

Species 1, claim 44-46, pertaining to a light emitting device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD and further the III-V alloy comprises Ga, In, N and As;

Species 2, claims 47-49, pertaining to a photodetecting device;

Species 3, claims 50-51, pertaining to a light emitting device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 2 Pa or more and a temperature of 500 C and further the III-V alloy comprises N and As;

Species 4, claims 52-53 pertaining to a light emitting device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 10 Pa or more and a temperature of 600 C

Species 5, claims 54-55, pertaining to a photoconductive device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 2 Pa or more;

Species 6, claims 56-57, pertaining to a photoconductive device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD wherein the N containing organic compound is selected from a group of monomethylahydrazine, dimethylahydrazine, and TBA under conditions such as partial pressure of 10 Pa or more and a temperature of 600 C.

Species 7, claims 58-59, pertaining to a semiconductor device having a III-V alloy on a GaAs substrate comprised of a group V element including MOCVD at a pressure at least that of conventional low pressure MOCVD and further the III-V alloy comprises Ga, In, N and As.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMS

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